

# Iowa Ambient Air Monitoring



## Annual Report 2000

Air Quality Bureau  
Iowa Department of Natural Resources

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# **IOWA AMBIENT AIR MONITORING NETWORK REVIEW: 2000**

by

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## **Introduction**

The purpose of this review is to compare ambient air monitoring data gathered in Iowa during the year 2000 with federal ambient air standards. These federal standards, known as National Ambient Air Quality Standards (NAAQS), have been established by Environmental Protection Agency (EPA) for seven “criteria” pollutants: particulate matter with a diameter less than 10 microns (PM<sub>10</sub>), particulate matter with a diameter less than 2.5 microns (PM<sub>2.5</sub>), sulfur dioxide, ozone, nitrogen dioxide, carbon monoxide, and lead. EPA designates certain types of monitoring equipment as acceptable for comparison with the NAAQS; this review involves only monitoring data collected with this type of equipment.

This report is divided into two parts. The first part is an executive summary, indicating where exceedances of the NAAQS were measured in Iowa during 2000. A more comprehensive review comprises the second part of the report, which includes the location and summary data for each monitor in the network.

Gaseous pollutant monitors (ozone, nitrogen dioxide, and sulfur dioxide monitors) provide hourly values and operate 24 hours a day, seven days a week. Ozone and nitrogen dioxide monitors are operated only when ozone levels are highest, from April through October. In contrast, particulate filter samplers collect one filter per day and usually are not operated on successive days. Most PM<sub>10</sub> monitors are operated at a sampling frequency of one sample every sixth day, and most PM<sub>2.5</sub> monitors are run at frequency of one sample every third day. Some particulate monitoring sites are run at frequencies greater than these nominal frequencies if they are located in highly populated areas or near pollution sources. Lead was not monitored in Iowa during the year 2000.

Incomplete data may skew the summary statistics for a monitor. In order to alert the reader to data completeness problems, monitors that were added or removed midway through the year have been indicated by an asterisk, and data completeness statistics have been provided for each monitor. If a monitor collected all of the schedule samples, then it has an associated data completeness of 100%.

NAAQS exceedances in 2000 were measured for two pollutants, PM<sub>10</sub> and ozone. The PM<sub>10</sub> NAAQS exceedances were measured on the boundaries of large industrial facilities and are likely to represent highly localized areas of poor air quality. In contrast, the ozone NAAQS exceedances were measured downwind of Cedar Rapids and Davenport and upwind of Des Moines, and the monitored values are likely to represent much larger areas of poor air quality, perhaps a county or more in area.

Data used to create this report were gathered by three organizations under contract with the Iowa Department of Natural Resources: the University of Iowa Hygienic Laboratory, the Polk County Health Department, and the Linn County Public Health Department. Air pollution data for Iowa and all other states is available online at: <http://www.epa.gov/air/data/>. Additional information on the NAAQS are available at: <http://www.epa.gov/airs/criteria.html>.

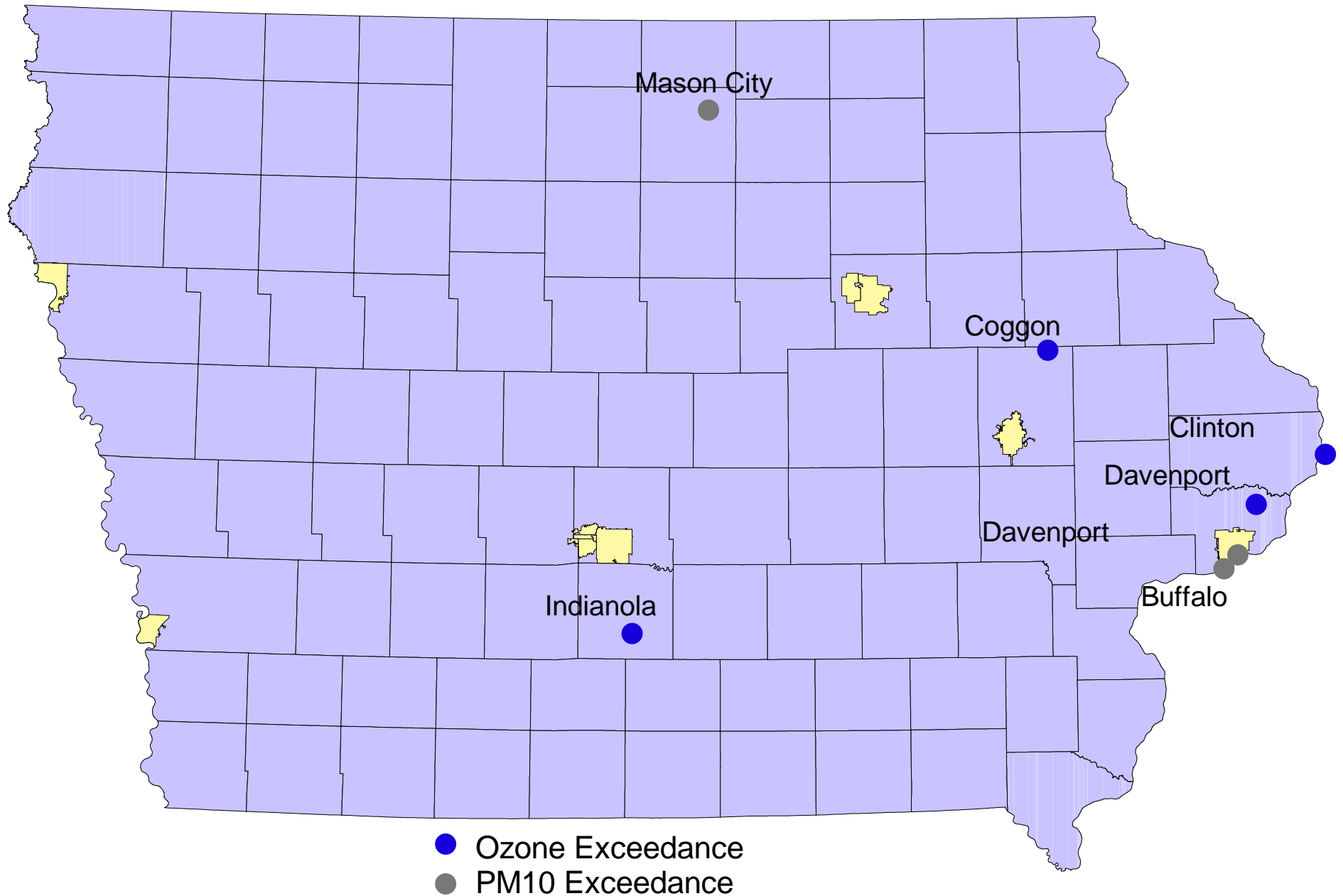
### Exceedances of the National Ambient Air Quality Standards in Iowa

Pollutant	Averaging Period	NAAQS Exceedance Level	Units	Number of Exceedances
<b>Ozone</b>	1hr	0.125	ppm	0
	8hr	0.085	ppm	4
<b>PM 2.5</b>	24hr	65.5	microgram per cubic meter	0
	annual	15.05	microgram per cubic meter	0
<b>PM10</b>	24hr	155	microgram per cubic meter	3
	annual	50.5	microgram per cubic meter	0
<b>Sulfur Dioxide</b>	3hr	0.55	ppm	0
	24hr	0.145	ppm	0
	annual	0.0305	ppm	0
<b>Carbon Monoxide</b>	1hr	35.5	ppm	0
	8hr	9.5	ppm	0
<b>Nitrogen Dioxide</b>	annual	0.0535	ppm	0*
<b>Lead</b>	quaterly	1.55	microgram per cubic meter	N/A**

\*Nitrogen Dioxide is only monitored during ozone season (April to October)

\*\*Lead was not monitored in 2000

# NAAQS Exceedances in 2000





## Ambient Air Monitoring Network in 2000

Site	Name	City	Address	County	Chart Label	Pollutant
190130008	Grout Museum	Waterloo	West Park St. & South St.	Black Hawk	Waterloo, Grout Museum	PM10, PM2.5
190170011	Waverly Airport	Waverly	Waverly Airport	Bremer	Waverly, Airport	O3
190330018	Holnam Cement	Mason City	17th St. & Washington St.	Cerro Gordo	Mason City, Holnam Cement	SO2, PM10
190330019	12th and Monroe	Mason City	10th & Monroe	Cerro Gordo	Mason City, 12th & Monroe	PM10, PM2.5
190450019	Chancy Park	Clinton	23rd & Camanche	Clinton	Clinton, Chancy Park	SO2, PM10
190450021	Rainbow Park	Clinton	Roosevelt St.	Clinton	Clinton, Rainbow Park	O3, PM2.5
190550001	Backbone State Park		Fish Hatchery Backbone State Park	Delaware	Backbone State Park	PM10
190630003	Iowa Lakes College	Estherville	19 S 7th St.	Emmet	Estherville, Iowa Lakes Coll.	PM10, PM2.5
190851101	Highway Maintenance Shed	Pisgah	1575 Hwy 183	Harrison	Pisgah, Highway Maintenance	O3
191032001	Hoover Elementary	Iowa City	2200 East Court	Johnson	Iowa City, Hoover Sch.	PM2.5
191111007	Fruehauf	Fort Madison	Hwy 61 South	Lee	Fort Madison, Fruehauf	SO2
191130028	Kirkwood College	Cedar Rapids	6301 Kirkwood Blvd SW (Iowa Hall)	Linn	Cedar Rapids, Kirkwood Coll.	SO2, O3
191130029	Science Station	Cedar Rapids	1st St.& 5th Ave. SW	Linn	Cedar Rapids, Science Station	SO2, PM10
191130030	SCI Financial Group	Cedar Rapids	200 2nd Ave. SE	Linn	Cedar Rapids, SCI Financial	CO
191130031	Scottish Rite Temple	Cedar Rapids	616 A Ave.	Linn	Cedar Rapids, Scottish Rite Temple	CO, SO2
191130032	1140 C St. SW	Cedar Rapids	1140 C St. SW	Linn	Cedar Rapids, C St. SW	SO2
191130033	Coggon	Cedar Rapids	408 E Linn St.	Linn	Cedar Rapids, Coggon	O3, NO2
191130034	Van Vechten Park	Cedar Rapids	1801 15TH AVE. SE	Linn	Cedar Rapids, Van Vechten Park	SO2
191130036	Monroe Elementary	Cedar Rapids	3200 Pioneer Ave. SE	Linn	Cedar Rapids, Monroe Sch.	PM2.5
191130037	Army Reserve Center	Cedar Rapids	1599 Wenig Rd. NE	Linn	Cedar Rapids, Army Reserve	PM10, PM2.5
191130038	Ely Rd. SW	Cedar Rapids	Ely Rd. SW	Linn	Cedar Rapids, Ely Rd. SW	SO2
191130039	Hawkeye Downs	Cedar Rapids	4400 6th St. SW	Linn	Cedar Rapids, Hawkeye Downs	SO2
191390015	Garfield School	Muscatine	1409 Wisconsin	Muscatine	Muscatine, Garfield Sch.	PM10, PM2.5
191390016	Greenwood Cemetary	Muscatine	Fletcher St. & Kimble St.	Muscatine	Muscatine, Greenwood Cemetary	SO2, PM2.5
191390017	Muscatine Power & Water	Muscatine	2200 Steward Rd.	Muscatine	Muscatine, Power and Water	SO2
191390020	Musser Park	Muscatine	Oregon St. & Earl Ave.	Muscatine	Muscatine, Musser Park	SO2, PM10
191471002	Iowa Lakes College	Emmetsburg	Iowa Lakes Community College - S Camp	Palo Alto	Emmetsburg, Iowa Lakes Coll.	O3, PM10
191530026	Dallas Center - Grimes School	Grimes	Main & S 5th St.	Polk	Grimes, D.C.-Grimes Sch.	PM10
191530052	Tech High School	Des Moines	19th & Grand Ave.	Polk	Des Moines, Tech High	CO
191530058	Phillips School	Des Moines	1701 Lay St.	Polk	Des Moines, Phillips Sch.	O3
191530059	National By-Products	Des Moines	SE 18th & Scott St.	Polk	Des Moines, Nat. By-Products	PM10, PM2.5
191530061	Easter Seals	Des Moines	2916 30th St. NW	Polk	Des Moines, Easter Seals	CO
191530062	Fire Station	Johnston	6011 NW 62nd Ave.	Polk	Johnston, Fire Station	CO
191532001	Fire Station	Des Moines	9th & Mulberry St.	Polk	Des Moines, Fire Station	PM10
191532510	Indian Hills Junior High	Clive	9401 Indian Hills	Polk	Clive, Indian Hills Sch.	PM2.5
191532520	Cornell Elementary	Des Moines	5817 NE 3rd St.	Polk	Des Moines, Cornell Sch.	PM2.5
191550009	Franklin Elementary	Council Bluffs	3130 C Ave.	Pottawattamie	Council Bluffs, Franklin Sch.	PM10, PM2.5
191630013	Black Hawk Foundry	Davenport	405 S.Faragut St.	Scott	Davenport, Black Hawk Foundry	PM10
191630014	Scott County Park	Davenport	Scott County Park	Scott	Scott County Park	O3, NO2
191630015	Jefferson Elementary	Davenport	10th St. & Vine St.	Scott	Davenport, Jefferson Sch.	SO2, PM10, PM2.5
191630017	Linwood Mining	Buffalo	11100 110th Ave.	Scott	Buffalo, Linwood Mining	PM10
191630018	Adams Elementary	Davenport	3029 N Division St.	Scott	Davenport, Adams Sch.	PM10, PM2.5
191632011	Highway Maintenance Shed	Argo	Hwy Z-30 1.5 miles N of Argo	Scott	Argo, Highway Maintenance	O3
191690011	Slater Elementary	Slater	505 Linn St.	Story	Slater, Slater Sch.	O3
191692530	Meeker Elementary	Ames	300 20th St.	Story	Ames, Meeker Sch.	PM2.5
191770005	Lake Sugema State Park		PO Box 538	Van Buren	Lake Sugema State Park	SO2, O3, PM2.5
191810022	Lake Ahquabi State Park		1650 118th Ave.	Warren	Lake Ahquabi State Park	O3
191930017	Lowell Elementary	Sioux City	27th at Morgan	Woodbury	Sioux City, Lowell Sch.	PM10, PM2.5

### Sites Added in 2000

Site	Name	City	County	Chart Label	Date
190170011	Waverly Airport	Waverly	Bremer	Waverly, Airport	4/1/00
190630003	Iowa Lakes College	Estherville	Emmet	Estherville, Iowa Lakes Coll.	1/1/00
191130039	Hawkeye Downs	Cedar Rapids	Linn	Cedar Rapids, Hawkeye Downs	6/1/00

### Sites Removed in 2000

Site	Name	City	County	Chart Label	Date
191130032	1140 C St. SW	Cedar Rapids	Linn	Cedar Rapids, C St. SW	7/1/00
191130034	Van Vechten Park	Cedar Rapids	Linn	Cedar Rapids, Van Vechten Park	3/31/00

### Monitors Added in 2000

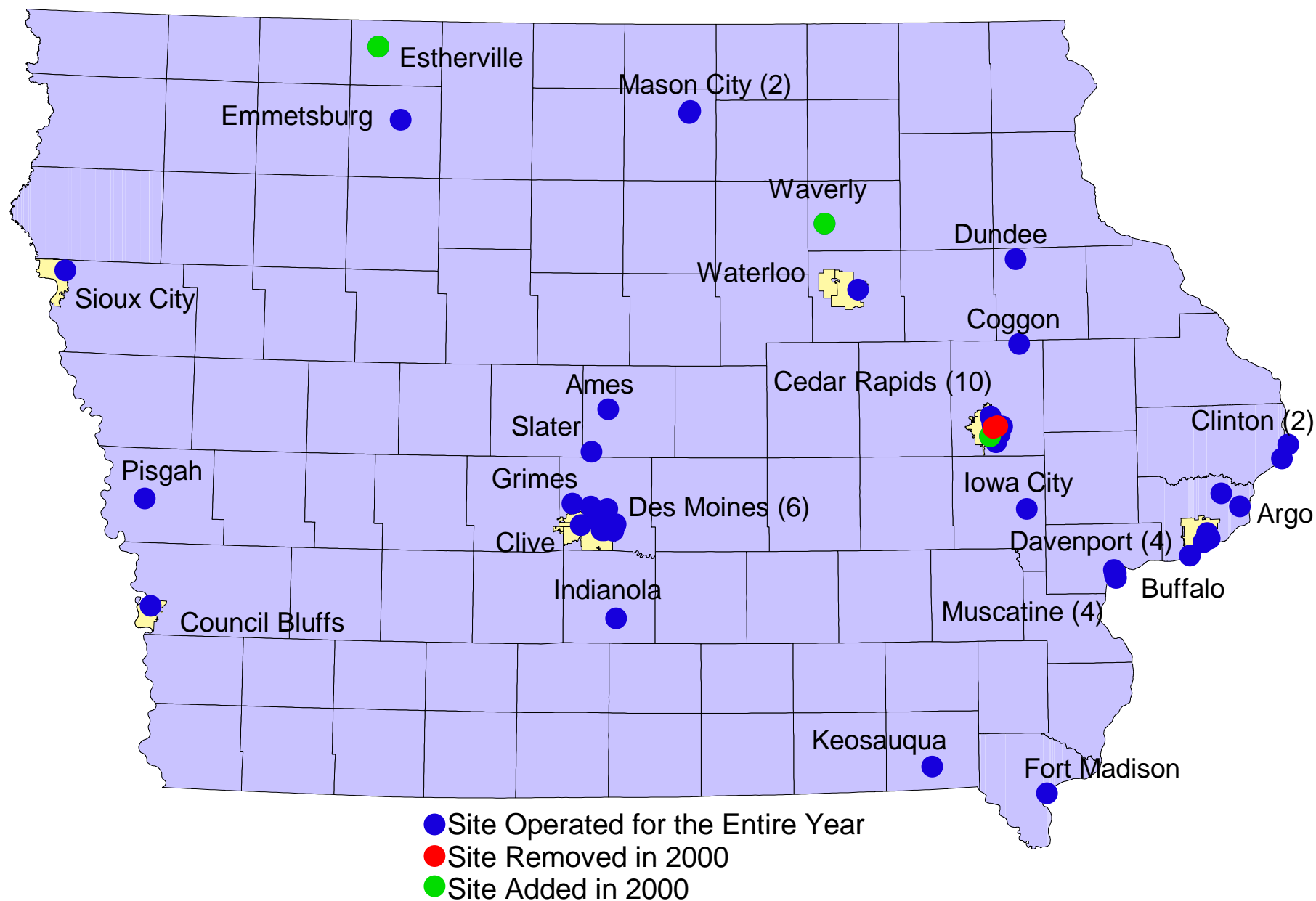
Site	Name	City	County	Chart Label	Date	Pollutant
190330019	12th and Monroe	Mason City	Cerro Gordo	Mason City, 12th & Monroe	1/1/00	PM10
190630003	Iowa Lakes College	Estherville	Emmet	Estherville, Iowa Lakes Coll.	1/1/00	PM10, PM2.5
191390015	Garfield School	Muscatine	Muscatine	Muscatine, Garfield Sch.	4/1/00	PM2.5
191390020	Musser Park	Muscatine	Muscatine	Muscatine, Musser Park	4/1/00	PM10
191471002	Iowa Lakes College	Emmetsburg	Palo Alto	Emmetsburg, Iowa Lakes Coll.	12/1/00	PM10
191770005	Lake Sugema State Park		Van Buren	Lake Sugema State Park	4/1/00	O3, PM2.5

### Monitors Removed in 2000

Site	Name	City	County	Chart Label	Date	Pollutant
191390016	Greenwood Cemetary	Muscatine	Muscatine	Muscatine, Greenwood Cemetary	3/31/00	PM2.5



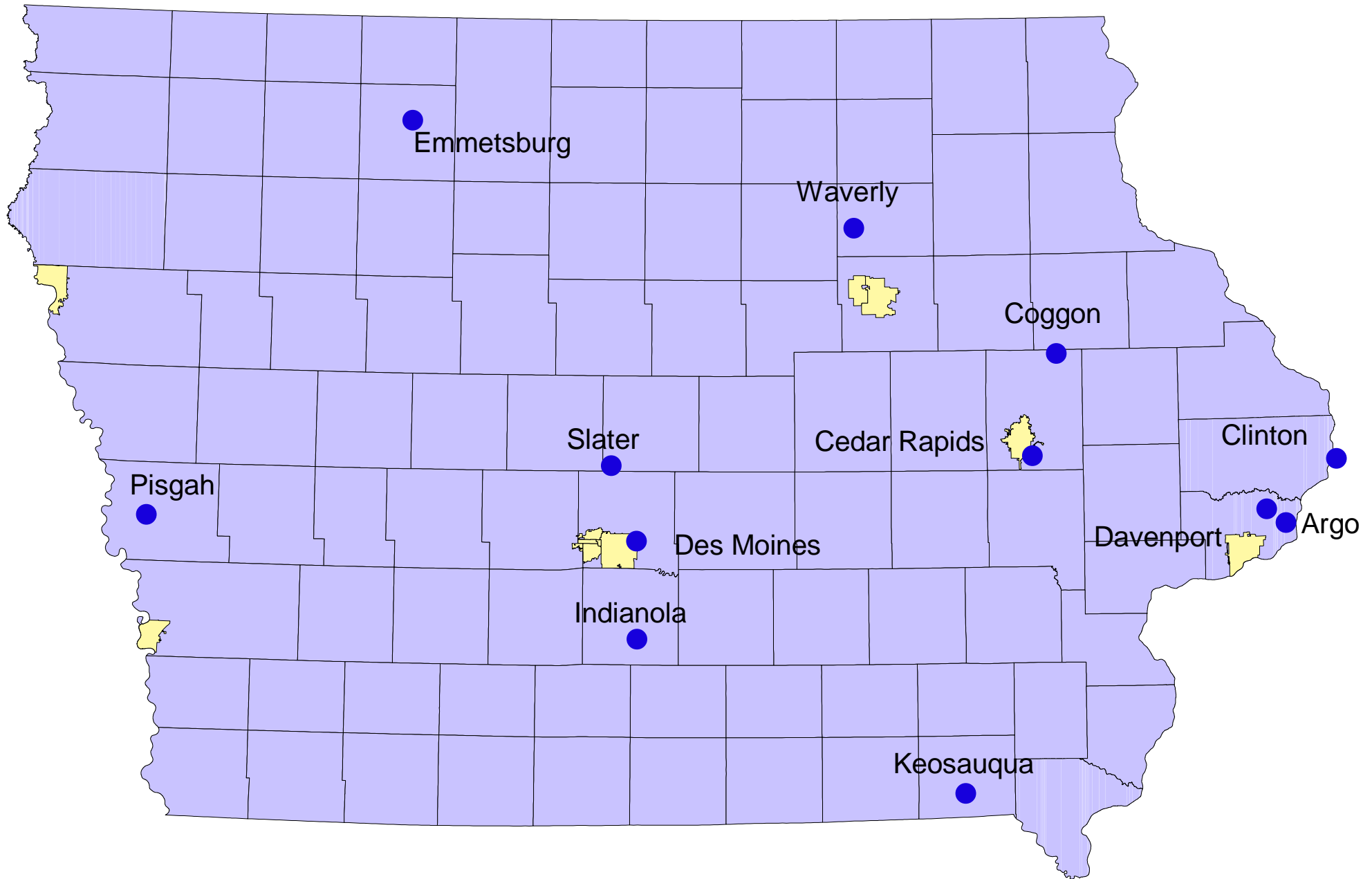
# Monitoring Sites in 2000



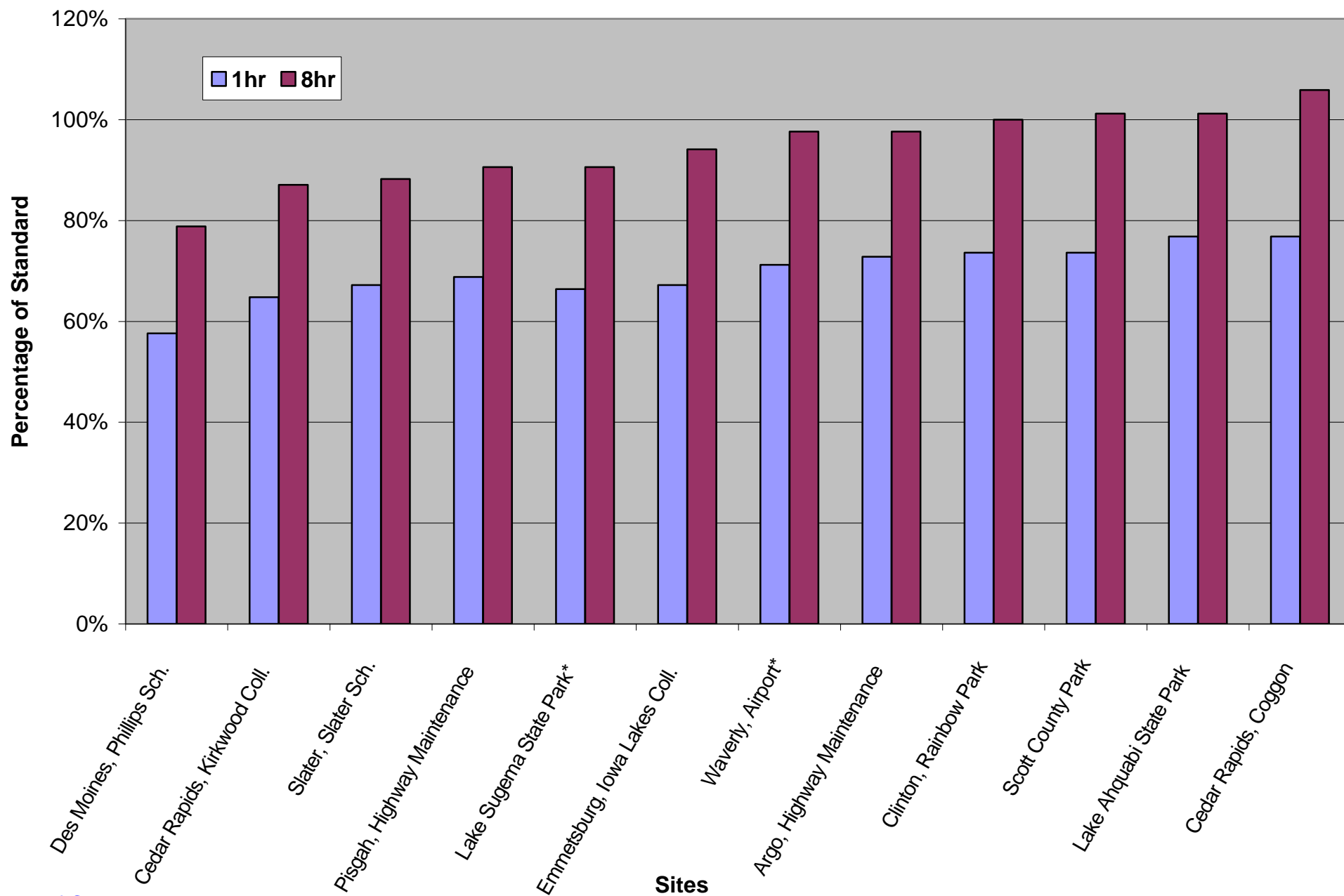
### Ozone Monitors

Site	Name	City	County	Chart Label
190170011	Waverly Airport	Waverly	Bremer	Waverly, Airport*
190450021	Rainbow Park	Clinton	Clinton	Clinton, Rainbow Park
190851101	Highway Maintenance Shed	Pisgah	Harrison	Pisgah, Highway Maintenance
191130028	Kirkwood College	Cedar Rapids	Linn	Cedar Rapids, Kirkwood Coll.
191130033	Coggon	Cedar Rapids	Linn	Cedar Rapids, Coggon
191471002	Iowa Lakes College	Emmetsburg	Palo Alto	Emmetsburg, Iowa Lakes Coll.
191530058	Phillips School	Des Moines	Polk	Des Moines, Phillips Sch.
191630014	Scott County Park	Davenport	Scott	Scott County Park
191632011	Highway Maintenance Shed	Argo	Scott	Argo, Highway Maintenance
191690011	Slater Elementary	Slater	Story	Slater, Slater Sch.
191770005	Lake Sugema State Park		Van Buren	Lake Sugema State Park*
191810022	Lake Ahquabi State Park		Warren	Lake Ahquabi State Park

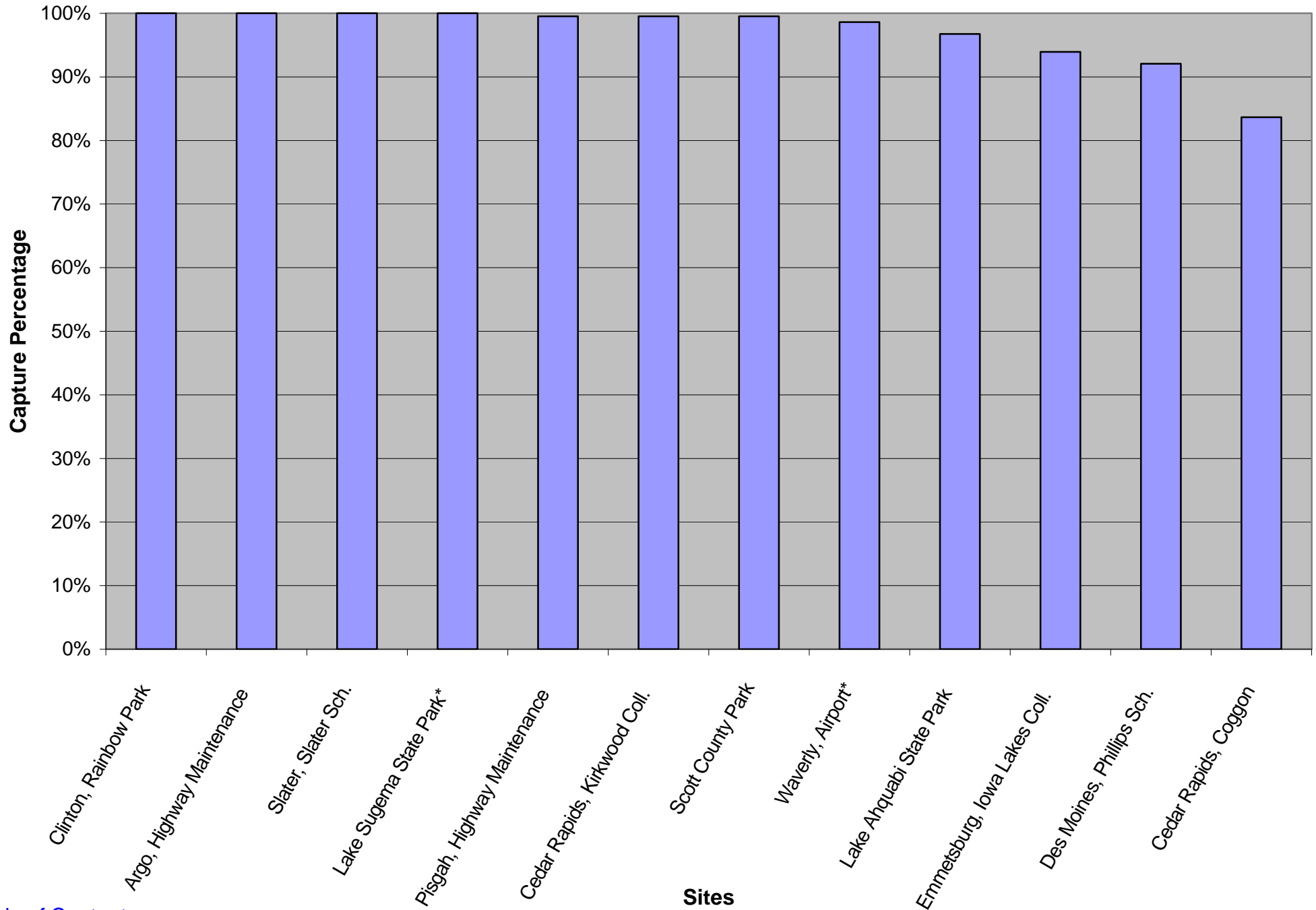
# Ozone Monitors



## Comparison of 2000 Ozone Data with National Ambient Air Quality Standards



## Data Capture - Ozone

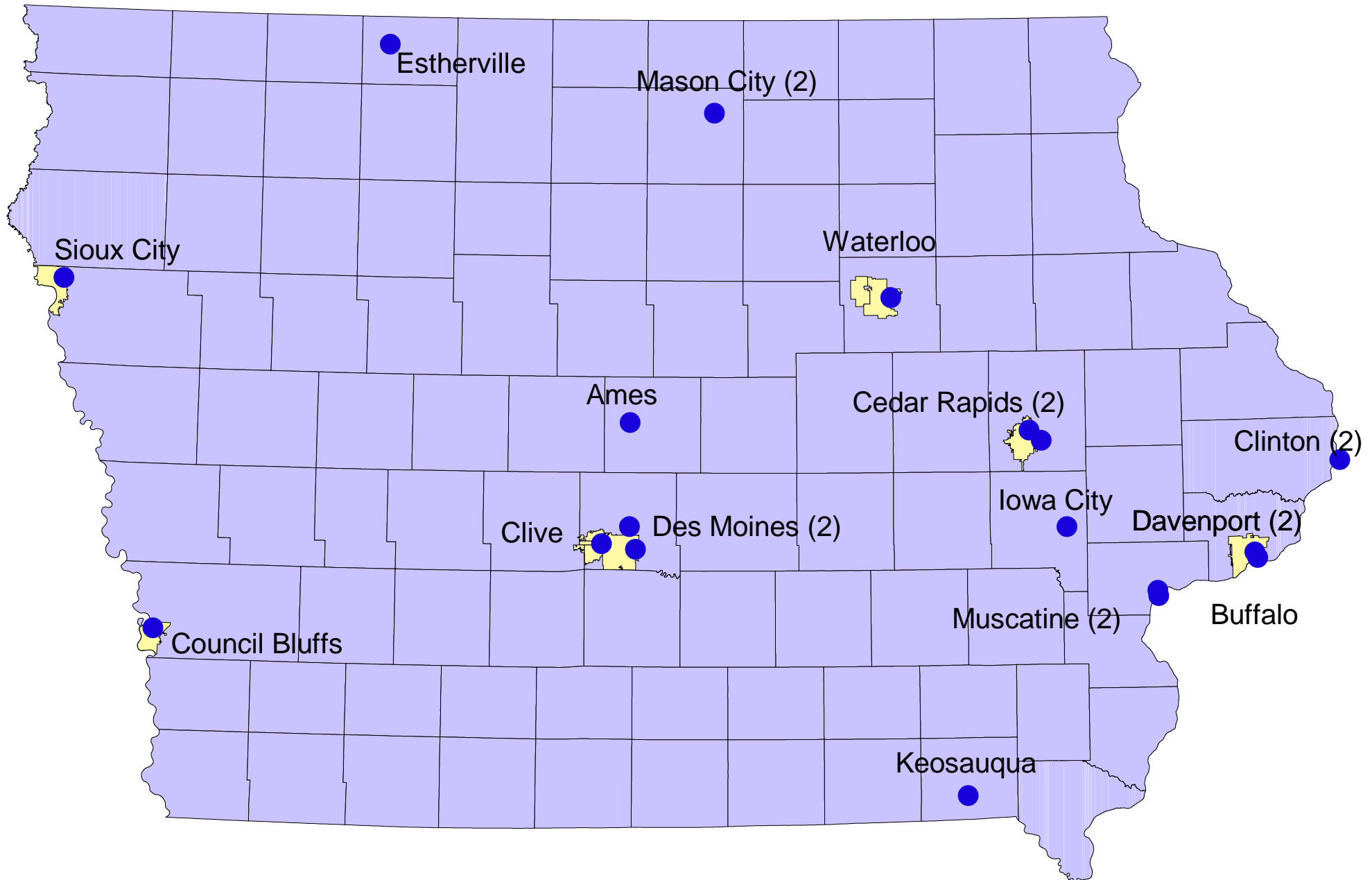


## PM2.5 Monitors

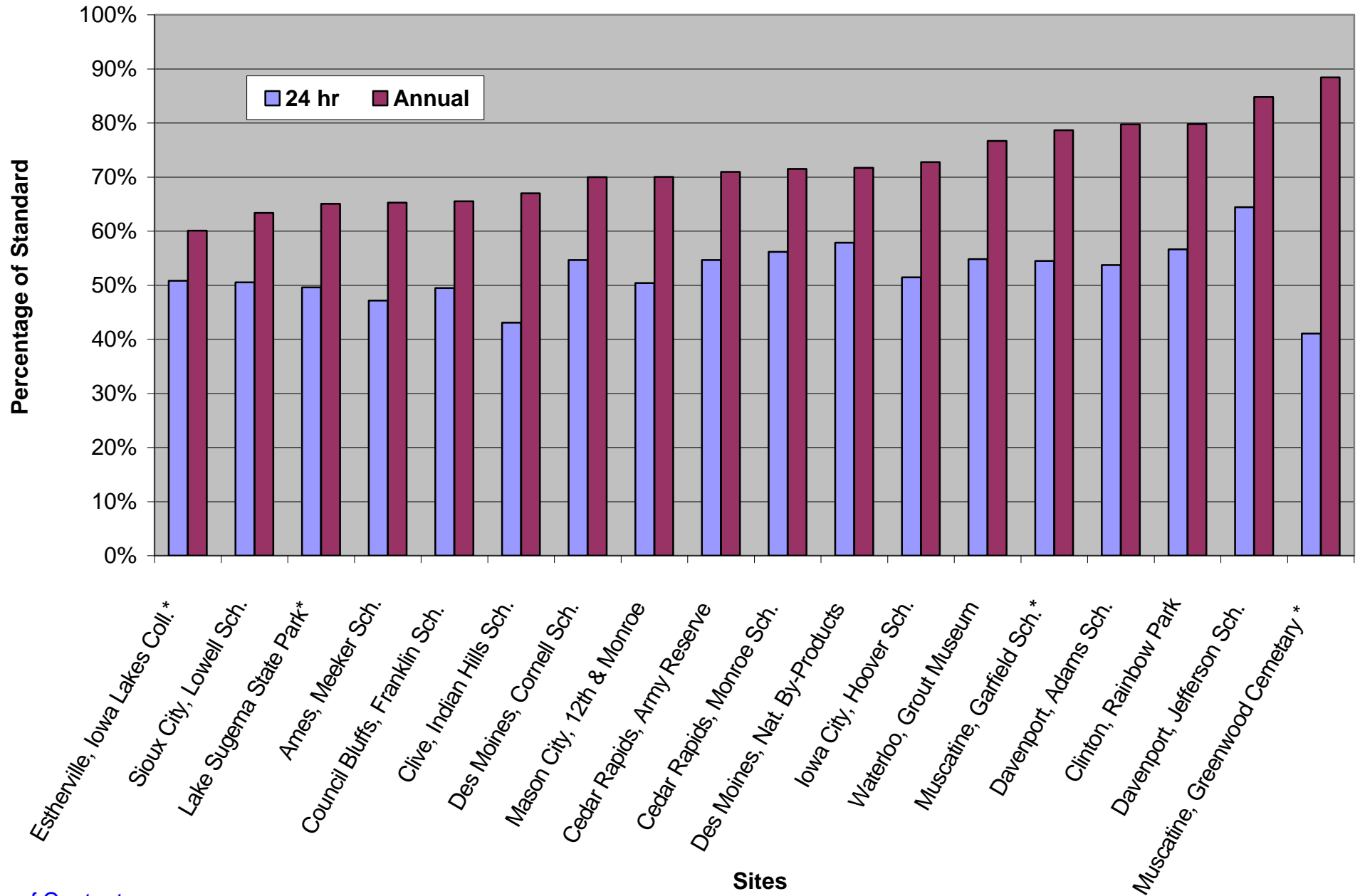
Site	Name	City	County	Chart Label
190130008	Grout Museum	Waterloo	Black Hawk	Waterloo, Grout Museum
190330019	12th and Monroe	Mason City	Cerro Gordo	Mason City, 12th & Monroe
190450021	Rainbow Park	Clinton	Clinton	Clinton, Rainbow Park
190630003	Iowa Lakes College	Estherville	Emmet	Estherville, Iowa Lakes Coll.*
191032001	Hoover Elementary	Iowa City	Johnson	Iowa City, Hoover Sch.
191130036	Monroe Elementary	Cedar Rapids	Linn	Cedar Rapids, Monroe Sch.
191130037	Army Reserve Center	Cedar Rapids	Linn	Cedar Rapids, Army Reserve
191390015	Garfield School	Muscatine	Muscatine	Muscatine, Garfield Sch.*
191390016	Greenwood Cemetary	Muscatine	Muscatine	Muscatine, Greenwood Cemetary *
191530059	National By-Products	Des Moines	Polk	Des Moines, Nat. By-Products
191532510	Indian Hills Junior High	Clive	Polk	Clive, Indian Hills Sch.
191532520	Cornell Elementary	Des Moines	Polk	Des Moines, Cornell Sch.
191550009	Franklin Elementary	Council Bluffs	Pottawattamie	Council Bluffs, Franklin Sch.
191630015	Jefferson Elementary	Davenport	Scott	Davenport, Jefferson Sch.
191630018	Adams Elementary	Davenport	Scott	Davenport, Adams Sch.
191692530	Meeker Elementary	Ames	Story	Ames, Meeker Sch.
191770005	Lake Sugema State Park		Van Buren	Lake Sugema State Park*
191930017	Lowell Elementary	Sioux City	Woodbury	Sioux City, Lowell Sch.



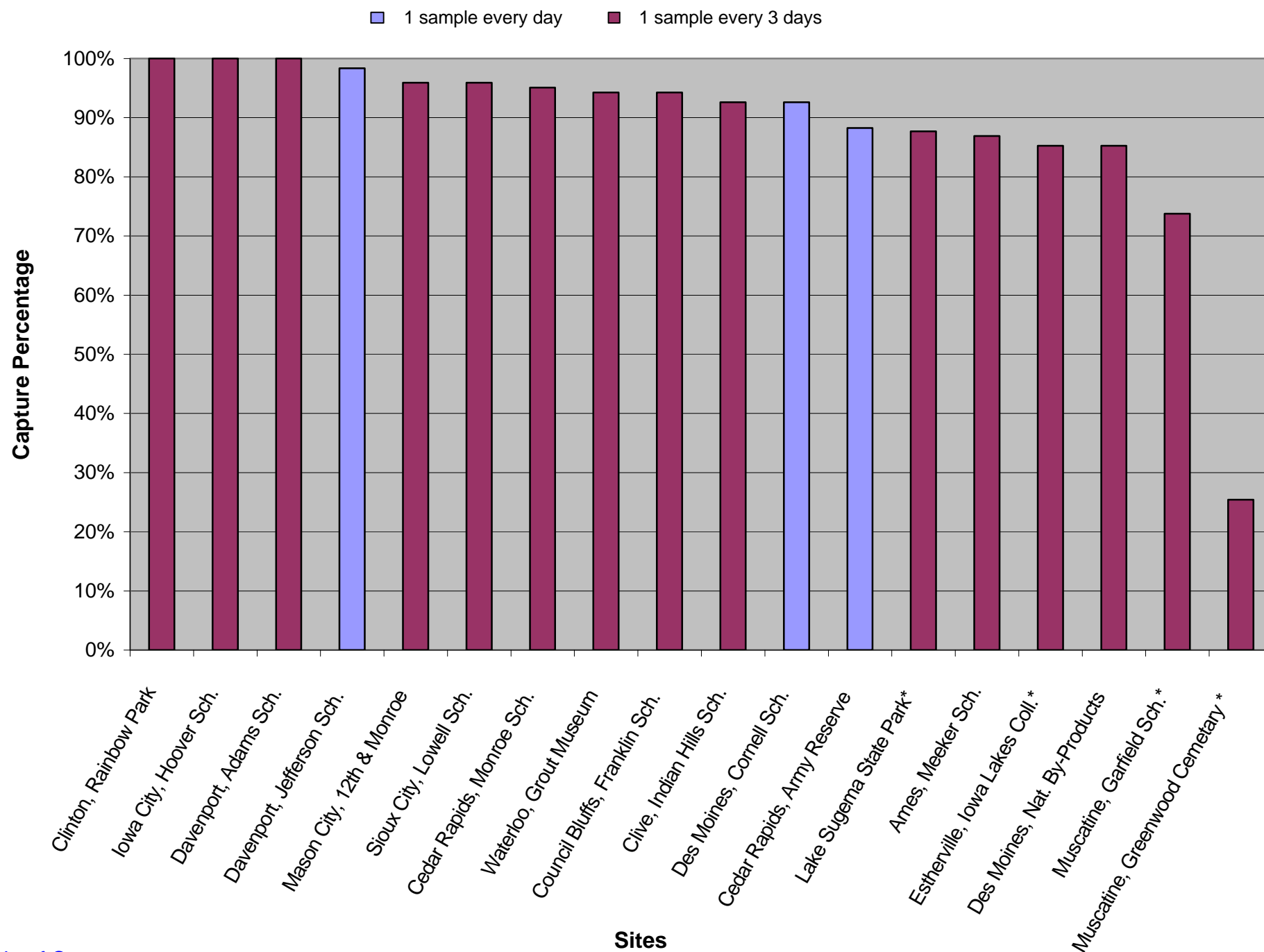
# PM2.5 Monitors



# Comparison of 2000 PM2.5 Data with National Ambient Air Quality Standards



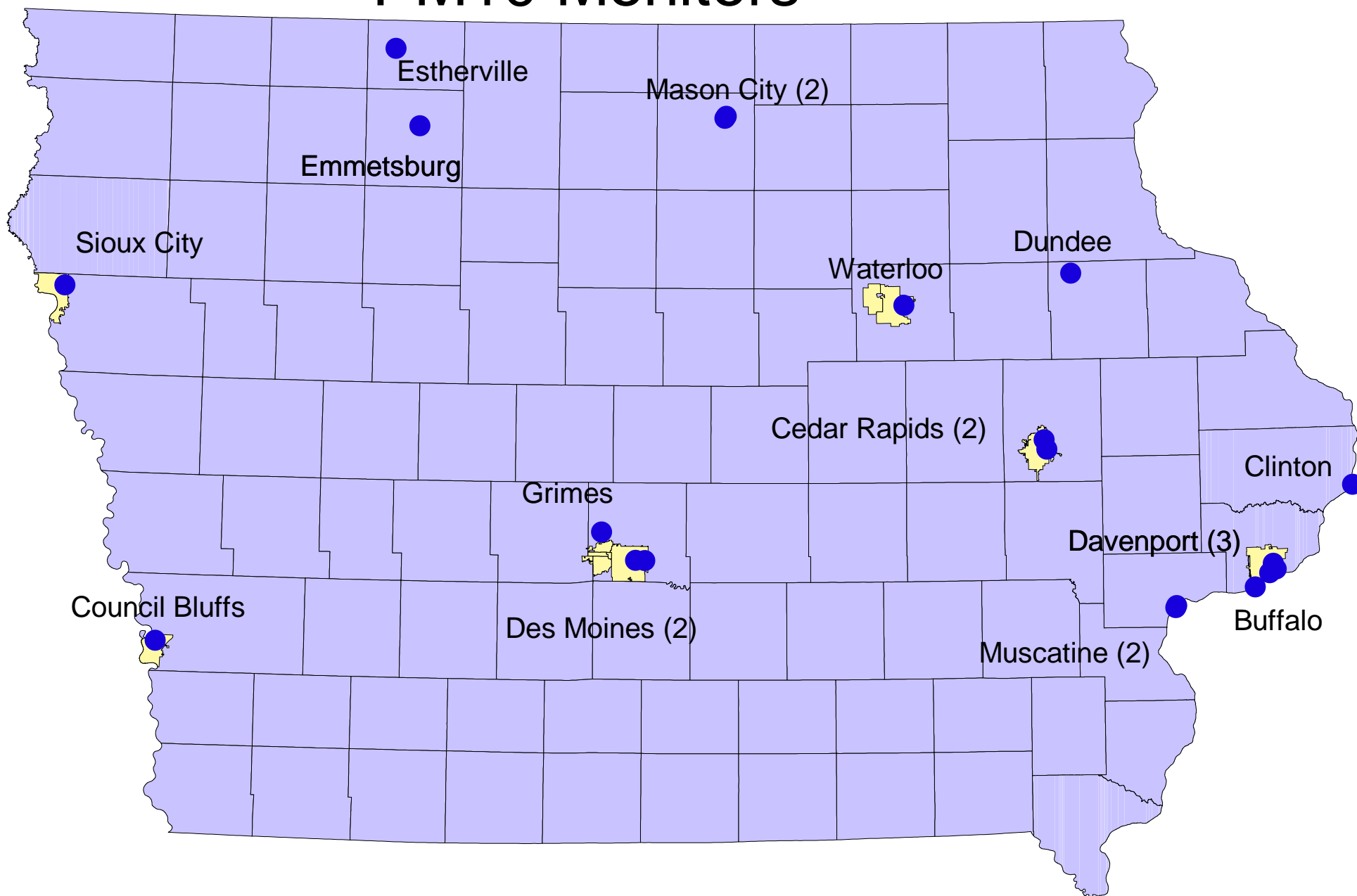
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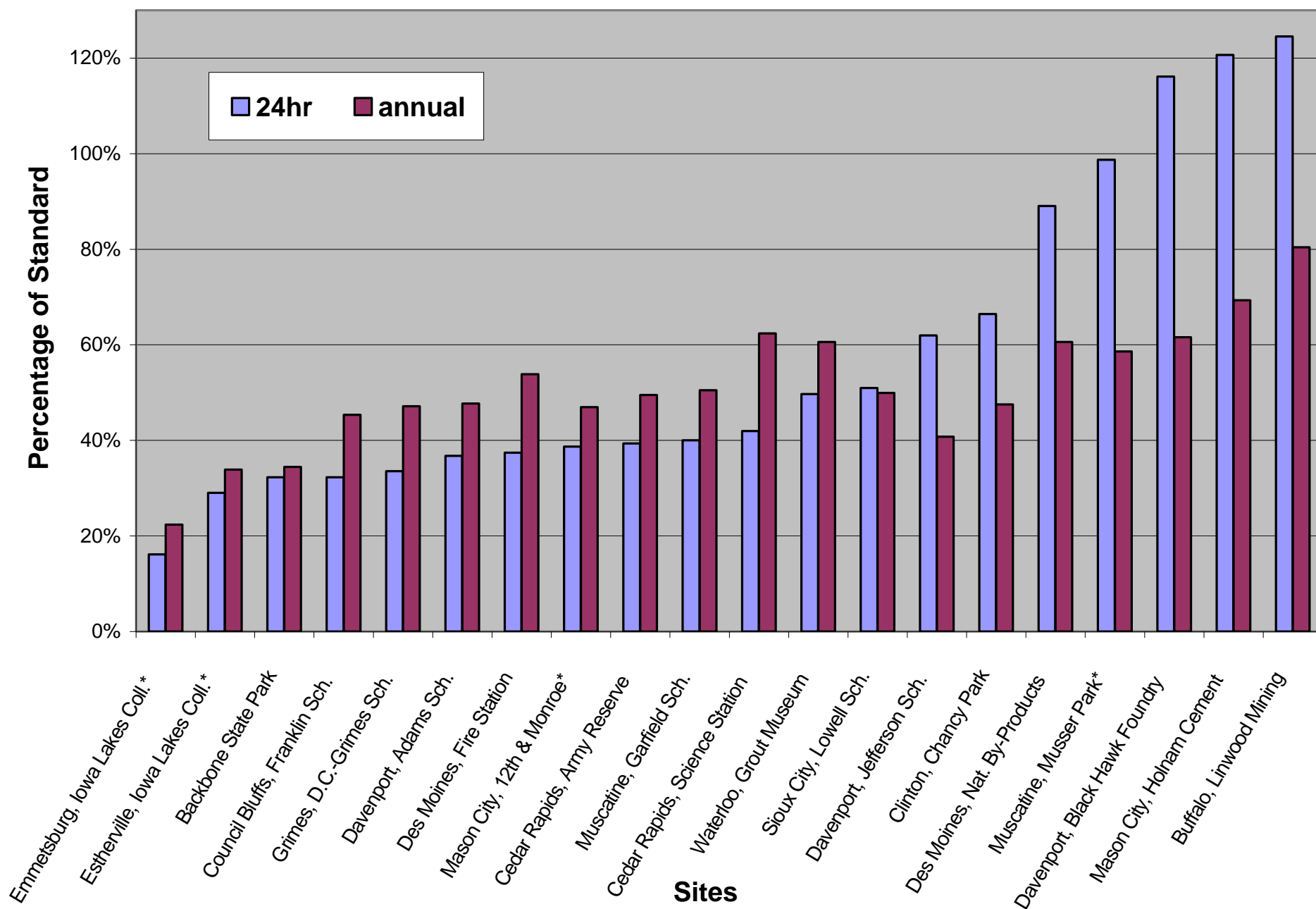
## PM10 Monitors

Site	Name	City	County	Chart Label
190130008	Grout Museum	Waterloo	Black Hawk	Waterloo, Grout Museum
190330018	Holnam Cement	Mason City	Cerro Gordo	Mason City, Holnam Cement
190330019	12th and Monroe	Mason City	Cerro Gordo	Mason City, 12th & Monroe*
190450019	Chancy Park	Clinton	Clinton	Clinton, Chancy Park
190550001	Backbone State Park		Delaware	Backbone State Park
190630003	Iowa Lakes College	Estherville	Emmet	Estherville, Iowa Lakes Coll.*
191130029	Science Station	Cedar Rapids	Linn	Cedar Rapids, Science Station
191130037	Army Reserve Center	Cedar Rapids	Linn	Cedar Rapids, Army Reserve
191390015	Garfield School	Muscatine	Muscatine	Muscatine, Garfield Sch.
191390020	Musser Park	Muscatine	Muscatine	Muscatine, Musser Park*
191471002	Iowa Lakes College	Emmetsburg	Palo Alto	Emmetsburg, Iowa Lakes Coll.*
191530026	Dallas Center - Grimes School	Grimes	Polk	Grimes, D.C.-Grimes Sch.
191530059	National By-Products	Des Moines	Polk	Des Moines, Nat. By-Products
191532001	Fire Station	Des Moines	Polk	Des Moines, Fire Station
191550009	Franklin Elementary	Council Bluffs	Pottawattamie	Council Bluffs, Franklin Sch.
191630013	Black Hawk Foundry	Davenport	Scott	Davenport, Black Hawk Foundry
191630015	Jefferson Elementary	Davenport	Scott	Davenport, Jefferson Sch.
191630017	Linwood Mining	Buffalo	Scott	Buffalo, Linwood Mining
191630018	Adams Elementary	Davenport	Scott	Davenport, Adams Sch.
191930017	Lowell Elementary	Sioux City	Woodbury	Sioux City, Lowell Sch.

# PM10 Monitors

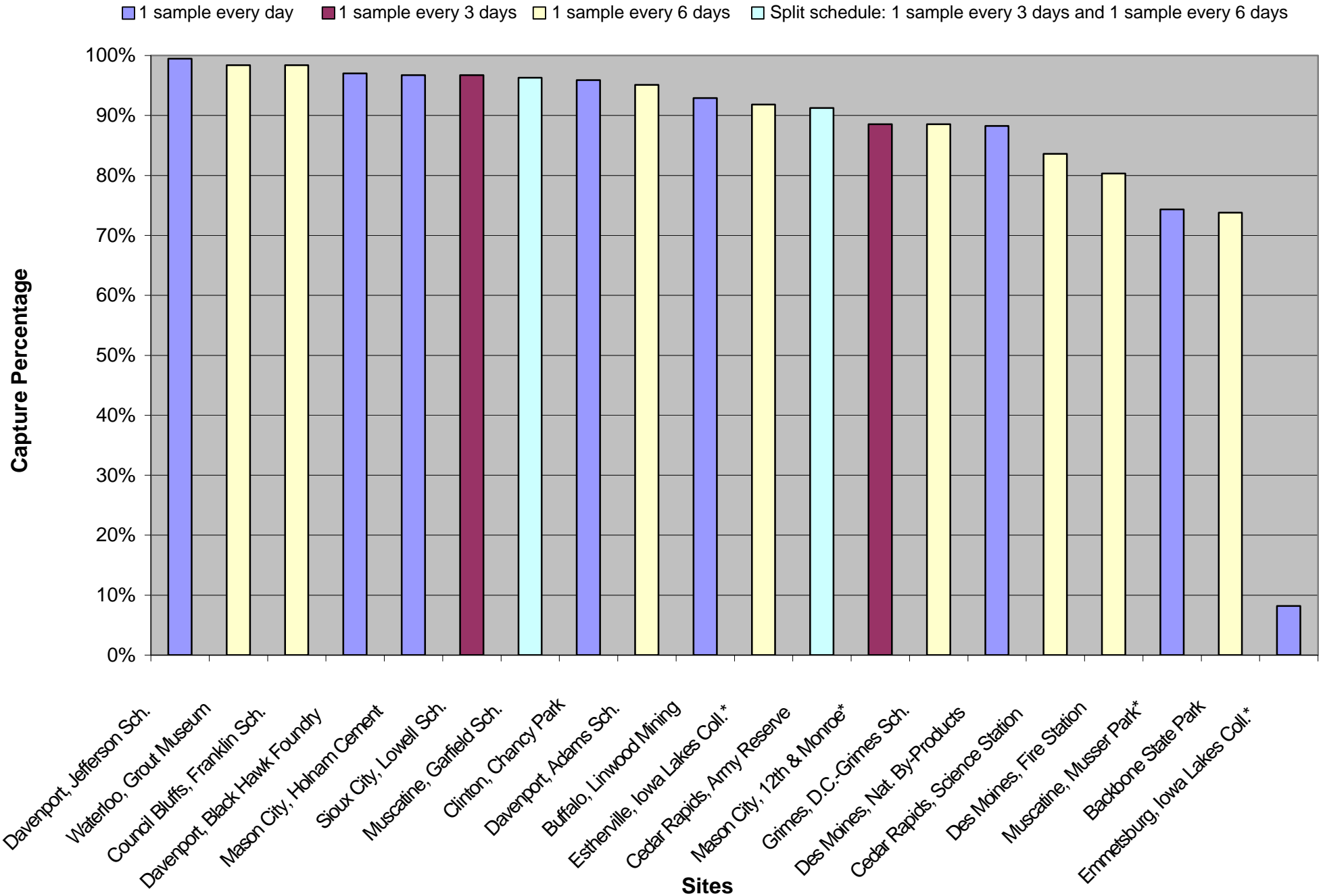


## Comparison of 2000 PM10 Data with National Ambient Air Quality Standards





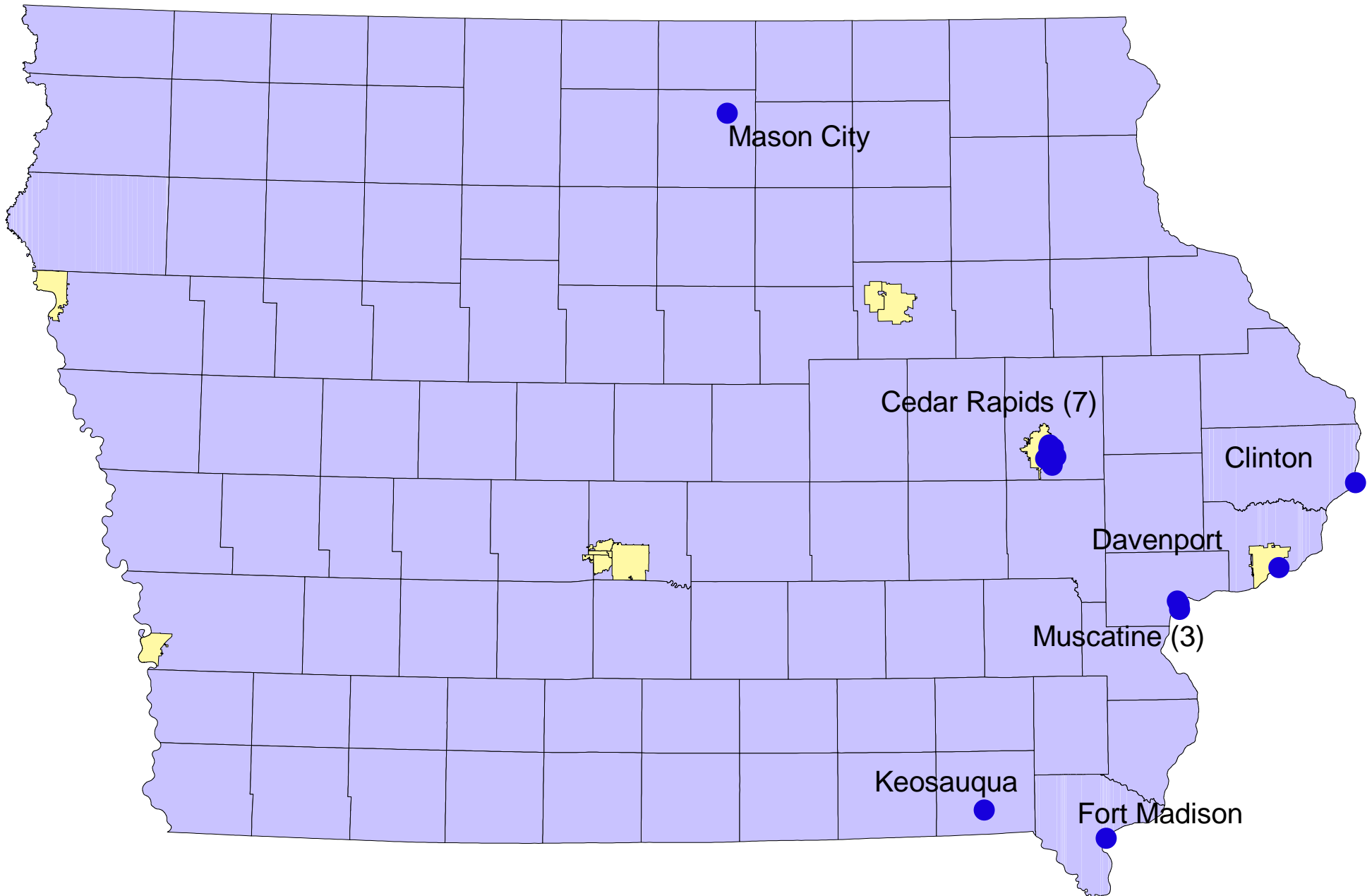
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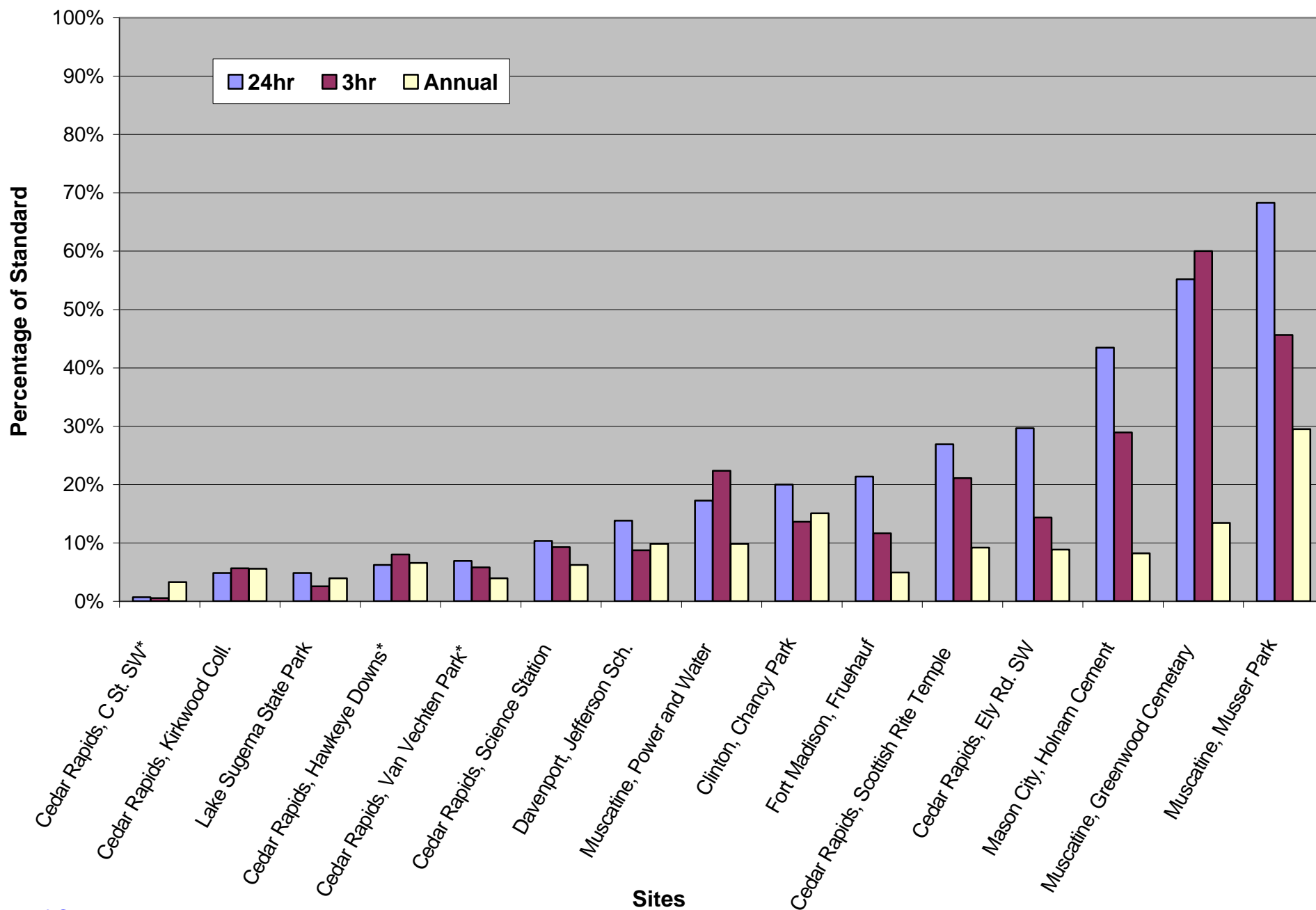
## Sulfur Dioxide Monitors

Site	Name	City	County	Chart Label
190330018	Holnam Cement	Mason City	Cerro Gordo	Mason City, Holnam Cement
190450019	Chancy Park	Clinton	Clinton	Clinton, Chancy Park
191111007	Fruehauf	Fort Madison	Lee	Fort Madison, Fruehauf
191130028	Kirkwood College	Cedar Rapids	Linn	Cedar Rapids, Kirkwood Coll.
191130029	Science Station	Cedar Rapids	Linn	Cedar Rapids, Science Station
191130031	Scottish Rite Temple	Cedar Rapids	Linn	Cedar Rapids, Scottish Rite Temple
191130032	1140 C St. SW	Cedar Rapids	Linn	Cedar Rapids, C St. SW*
191130034	Van Vechten Park	Cedar Rapids	Linn	Cedar Rapids, Van Vechten Park*
191130038	Ely Rd. SW	Cedar Rapids	Linn	Cedar Rapids, Ely Rd. SW
191130039	Hawkeye Downs	Cedar Rapids	Linn	Cedar Rapids, Hawkeye Downs*
191390016	Greenwood Cemetary	Muscatine	Muscatine	Muscatine, Greenwood Cemetary
191390017	Muscatine Power & Water	Muscatine	Muscatine	Muscatine, Power and Water
191390020	Musser Park	Muscatine	Muscatine	Muscatine, Musser Park
191630015	Jefferson Elementary	Davenport	Scott	Davenport, Jefferson Sch.
191770005	Lake Sugema State Park		Van Buren	Lake Sugema State Park

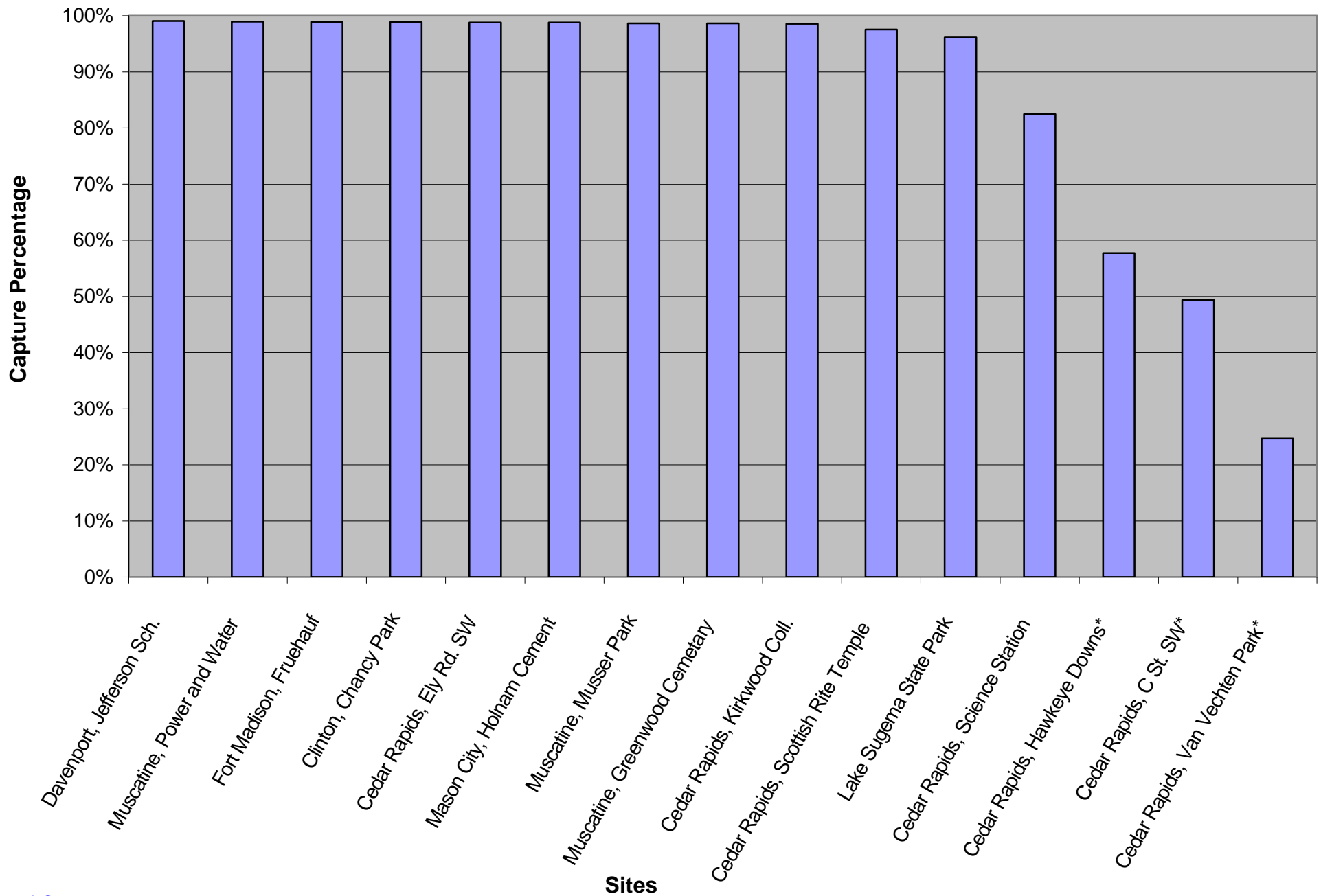
# Sulfur Dioxide Monitors



## Comparison of 2000 Sulfur Dioxide Data with National Ambient Air Quality Standards



## Data Capture - Sulfur Dioxide

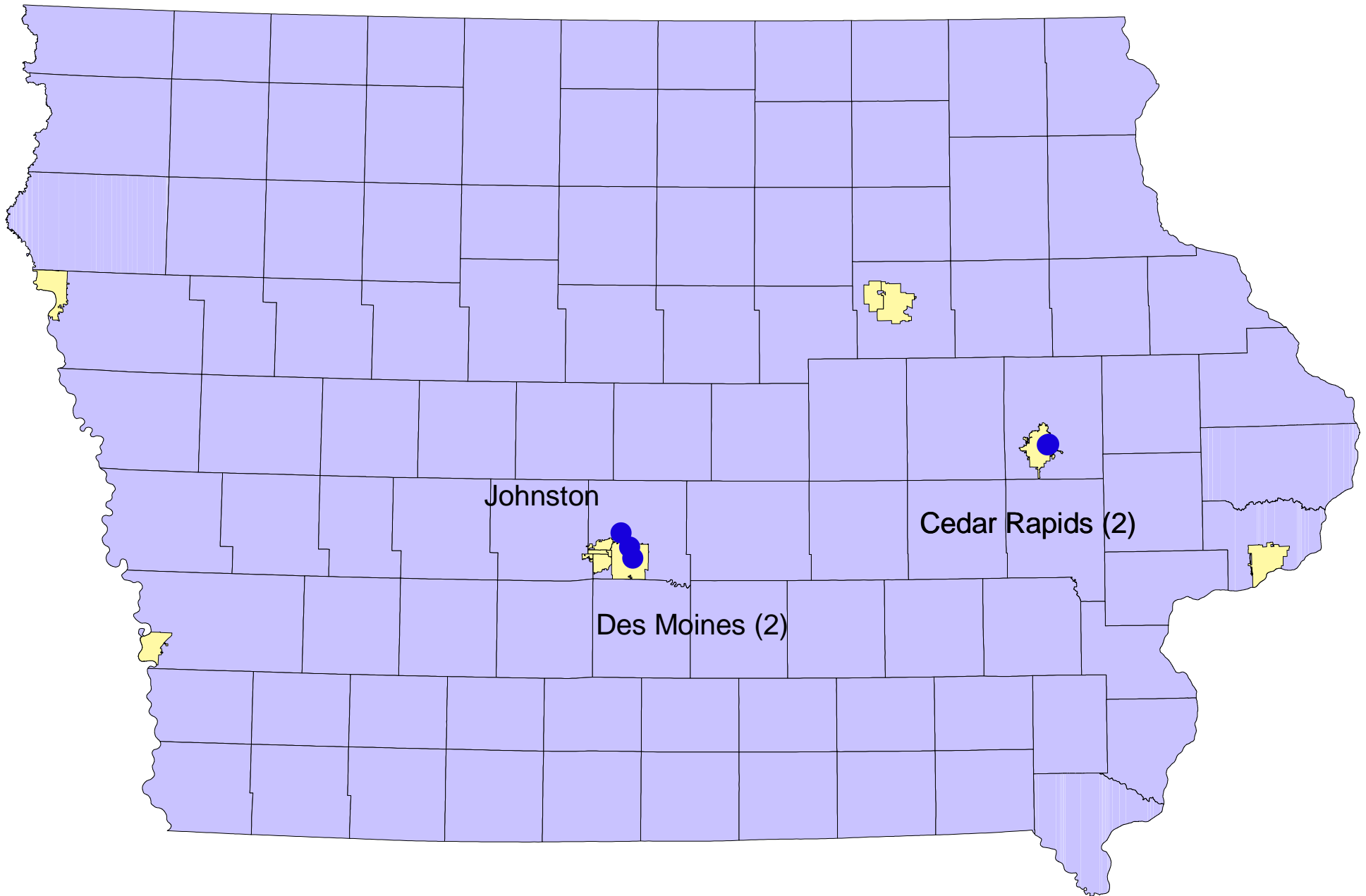


### Carbon Monoxide Monitors

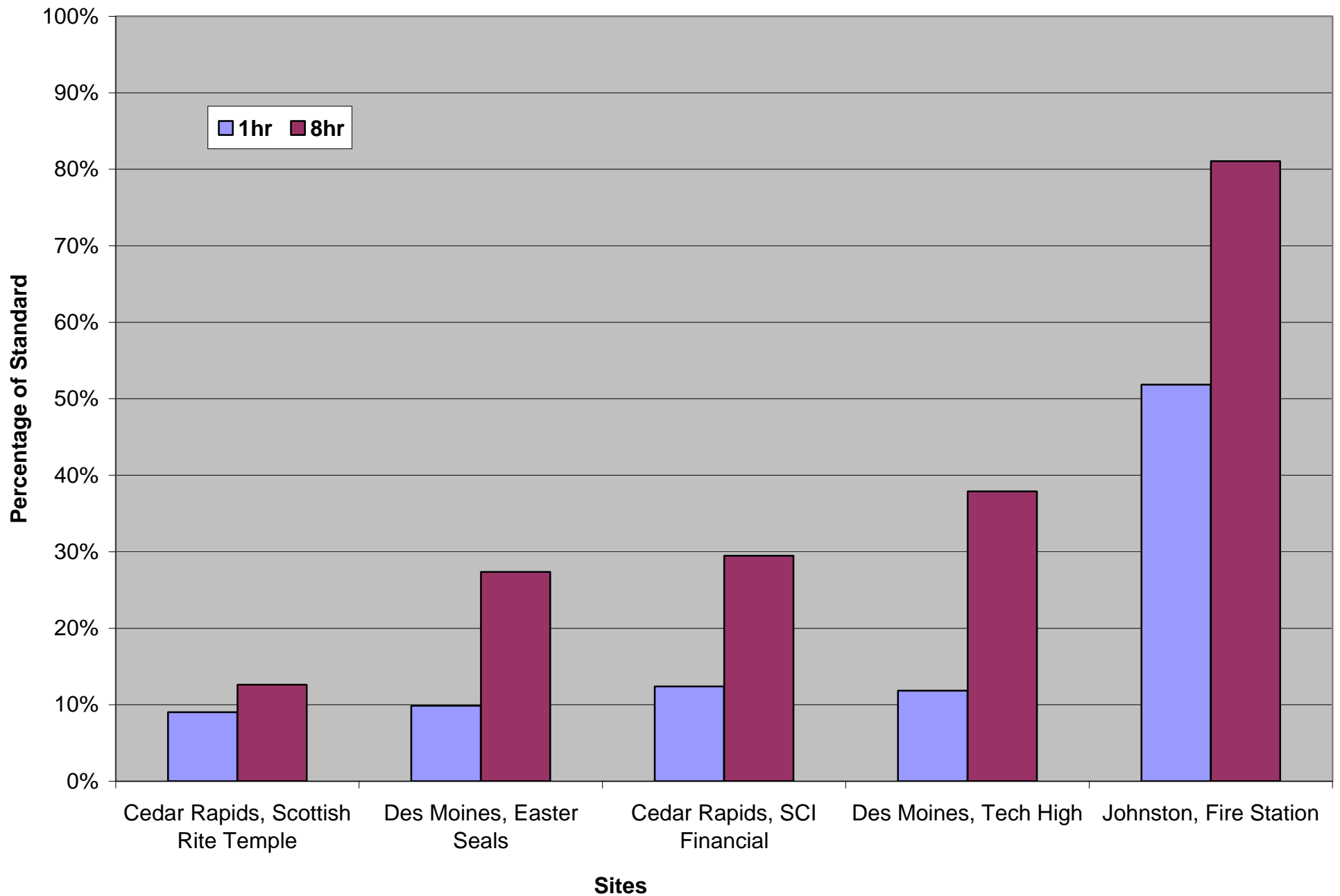
Site	Name	City	County	Chart Label
191130030	SCI Financial Group	Cedar Rapids	Linn	Cedar Rapids, SCI Financial
191130031	Scottish Rite Temple	Cedar Rapids	Linn	Cedar Rapids, Scottish Rite Temple
191530052	Tech High School	Des Moines	Polk	Des Moines, Tech High
191530061	Easter Seals	Des Moines	Polk	Des Moines, Easter Seals
191530062	Fire Station	Johnston	Polk	Johnston, Fire Station



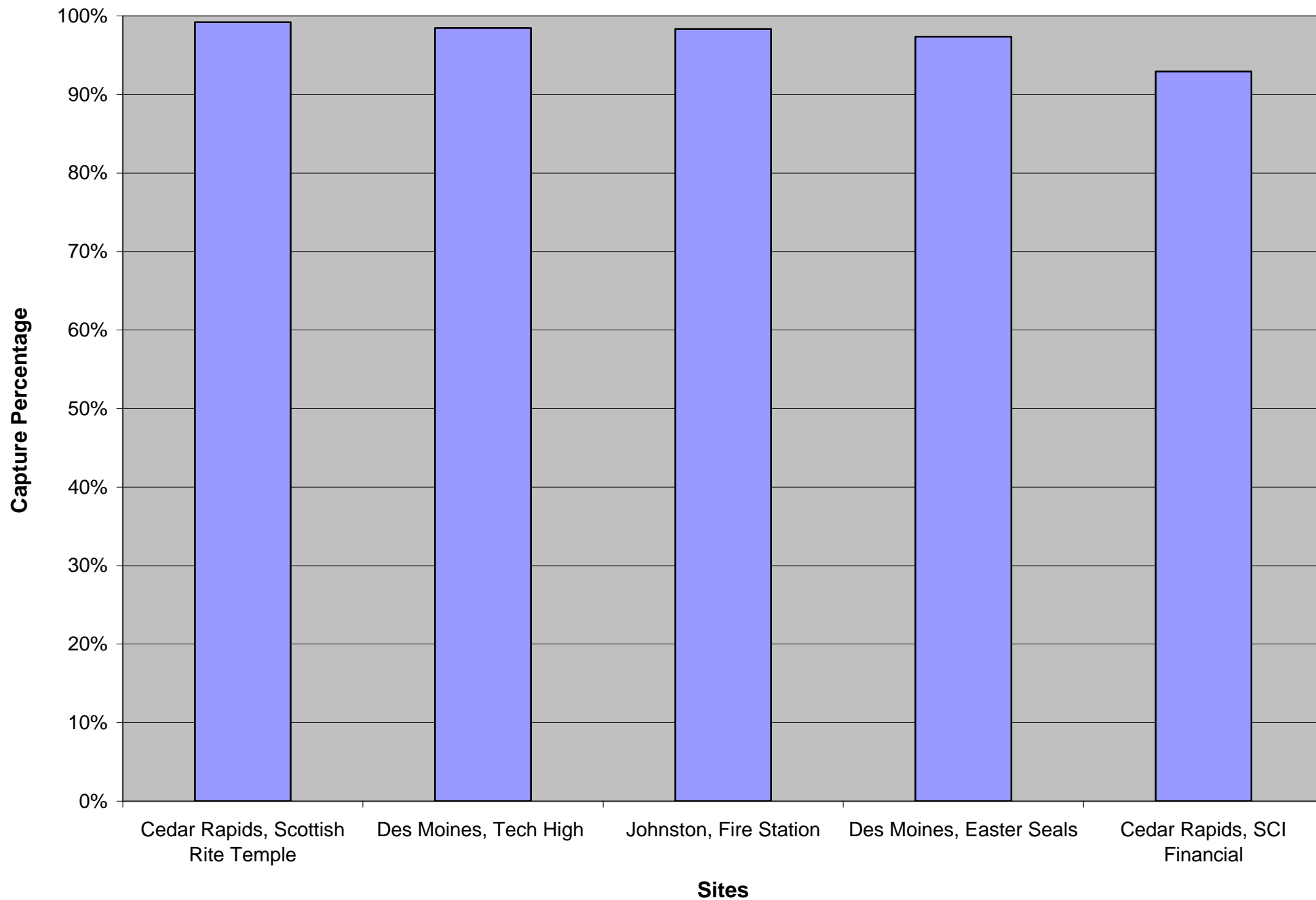
# Carbon Monoxide Monitors



## Comparison of 2000 Carbon Monoxide Data with National Ambient Air Quality Standards



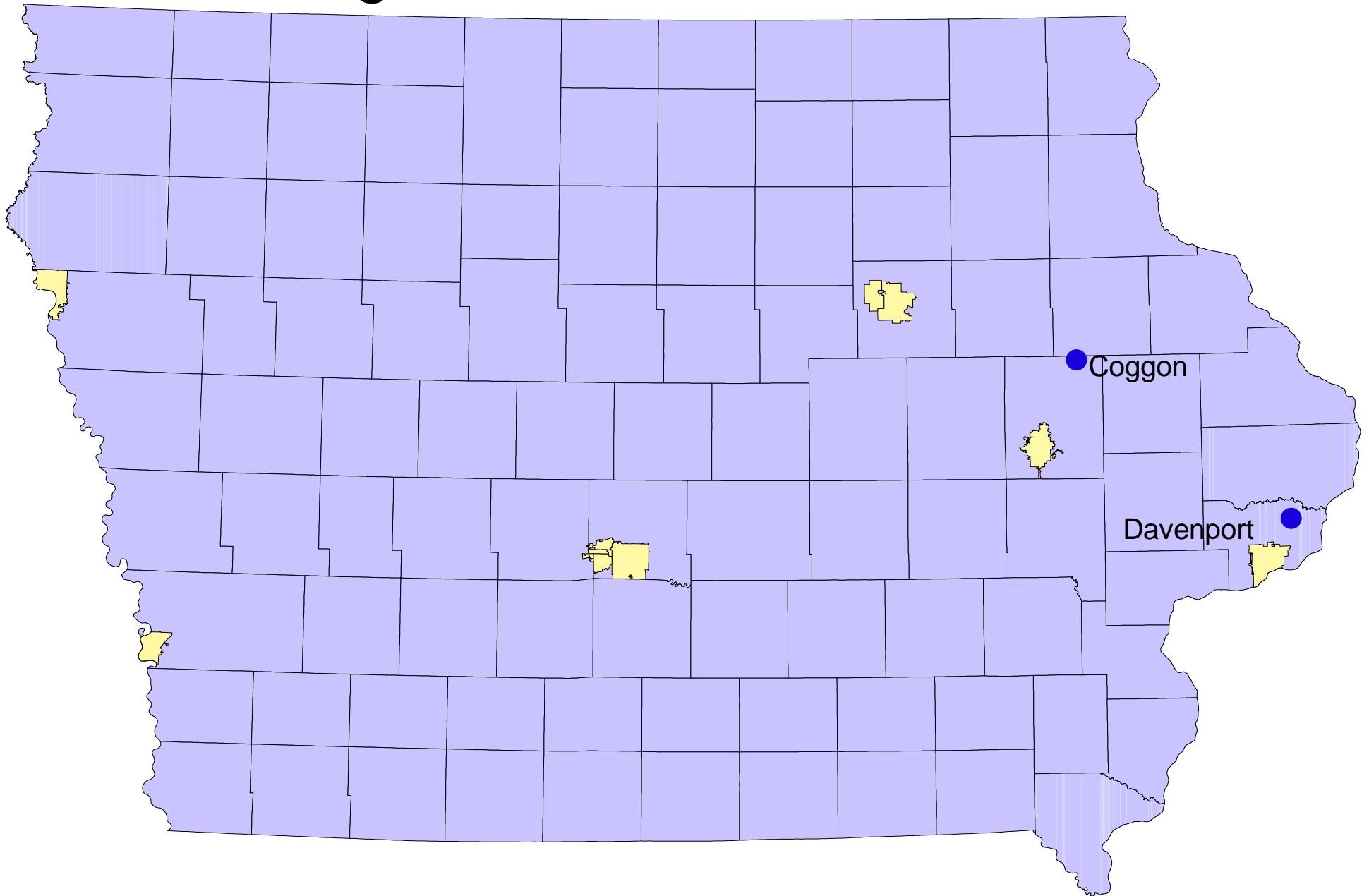
## Data Capture - Carbon Monoxide



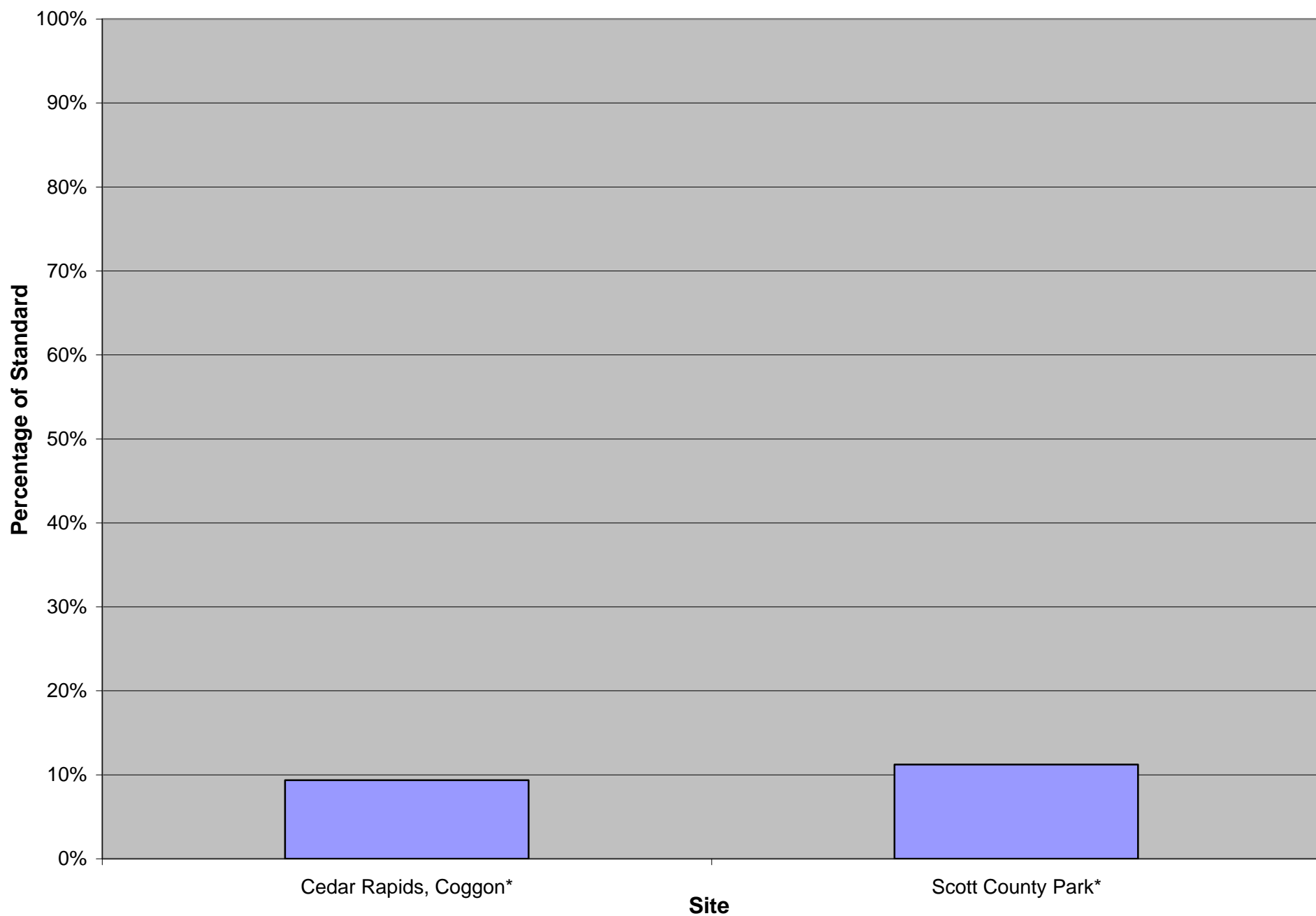
### Nitrogen Dioxide Monitors

Site	Name	City	County	Chart Label
191130033	Coggon	Cedar Rapids	Linn	Cedar Rapids, Coggon*
191630014	Scott County Park	Davenport	Scott	Scott County Park*

# Nitrogen Dioxide Monitors



## Comparison of 2000 Nitrogen Dioxide Data with National Ambient Air Quality Standards





# Data Capture - Nitrogen Dioxide

